UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL. 60604-3590

SEP 23 1999

VIA FACSIMILE AND CERTIFIED MAIL
RETURN RECEIPT REQUESTED

REPLY TO THE ATTENTION OF
DE-9J

Mr. Samuel S. Waldo
Director of Environmental Affairs
Amphenol Corporation
358 Hall Avenue
P.O. Box 5030
Wallingford, Connecticut 06492

Re: Franklin Power Products, Inc./Amphenol
Review of CMI Groundwater Recovery
and Treatment System Upgrade Report,
Treatability Study AS/SVE, and
Webb Field Evaluation
Franklin, Indiana
IND 044 587 848

Dear Mr. Waldo:

The United States Environmental Protection Agency (U.S. EPA) has reviewed: the Corrective Measures Implementation (CMI) Groundwater Recovery and Treatment System Upgrade Report; the Treatability Study Air Sparging/Soil Vapor Extraction (AS/SVE) System Report; and the Webb Field Evaluation Report that were submitted to U.S. EPA on May 6, 1999, by O'Brien & Geere Engineers, Inc. on behalf of Franklin Power Products, Inc. and Amphenol Corporation.

Groundwater Recovery and Treatment System Upgrade Report

In general, U.S. EPA did not find the data presented in the Groundwater Recovery and Treatment System Upgrade Report to be of adequate quantity or quality to enable verification of the conclusions reached by the Report, specifically the conclusion regarding the containment of on-site groundwater. Specific comments are provided in the enclosure which specify the additional information that should be obtained and/or submitted to support the statements made in the Report.

The Groundwater Recovery and Treatment System Upgrade Report states that one of the objectives for replacing the recovery wells' pneumatic pumps with electric submersible pumps was to increase the groundwater withdrawal rates sufficiently to suppress the water level within the aquifer to an elevation below the invert elevation of a 72-inch diameter storm drain which

crosses the site. Based on the data and statements (page 3) presented within the Report, this objective does not appear to have been accomplished. The Report recommends (page 3) a continuation of the groundwater elevation monitoring to determine whether continued pumping of the upgraded system will, over time, result in the dewatering of the water bearing zone, and lowering of the water table to an elevation below the storm sewer invert. U.S. EPA concurs with the recommendation for the short-term since the new pumps and additional extraction well have resulted in an overall increase in groundwater withdrawal rates. However, since the report indicates (page 3) that after approximately one month of pumping with the upgraded system the groundwater level adjacent to the storm sewer was still one foot above the invert of the storm sewer, U.S. EPA suggests that if the groundwater elevation adjacent to the storm sewer does not show a substantial continued decreasing trend during the first six months of operation, that Franklin implement other measures to prevent continued groundwater infiltration to the storm sewer pursuant to Section VIII, Work To Be Performed, Paragraph E of the Consent Order.

Treatability Study: Air Sparging/Soil Vapor Extraction

Due to the nature of this document, U.S. EPA has not generated any deficiency comments, but rather provided the following information on the efficacy of the system. U.S. EPA reviewed the Amphenol Franklin Power Products Treatability Study: Air Sparging/Soil Vapor Extraction (AS/SVE) System Final Report (May 1999) prepared by O'Brien and Gere Engineers Inc. (Treatability Study). The primary objective of the Treatability Study was to evaluate the feasibility of using AS/SVE technology to supplement the existing groundwater recovery system and enhance the removal of volatile organic compounds (VOCs) from ground water in the vicinity of the storm sewer. The pilot study included the installation of two air sparge injection wells, one soil vapor extraction well and two new monitoring wells (equipped with both a shallow and deep monitoring point).

The treatability study consisted of three phases. In the first, only the air sparging portion of the system was operated and monitored. In the second phase, only the soil vapor extraction system was operated and monitored and in the third stage, both systems were operated in unison. Based on the information provided in the Treatability Study Report, it appears that the Treatability Study was performed and monitored in an appropriate manner. The Treatability Study results were used to determine an average perchloroethylene (PCE) removal rate for the study and to calculate a radius of influence for both the injection and extraction well points to establish an appropriate design for a

full scale air sparging/soil vapor extraction system. O'Brien & Gere determined that the average PCE removal rate was equal to approximately 0.005 pounds per hour (page 9). They also found that in order to appropriately cover the proposed treatment area, a full scale system would have to consist of 80 injection wells and 9 extraction wells distributed across an area of approximately 200 feet by 40 feet (page 10). Page 10 of the Treatability Study indicates that the effective PCE removal rate for the ground water recovery system is approximately 0.02 pounds per hour. The primary conclusion of the Treatability Study presented on page 10, is that due to the large number of wells required for the full scale AS/SVE system and the relatively low expected PCE recovery rate, the design and installation of a full scale system is not recommended.

Based on U.S. EPA's evaluation of the information provided in the Treatability Study Report, U.S. EPA concurs with the conclusion that the design and installation of a full scale AS/SVE system for the Franklin site is not appropriate. Our primary rationale is that the very low PCE removal rate established during Treatability Study does not appear to warrant the costs associated with installing, operating and monitoring a full scale air sparging/soil vapor extraction system at the Franklin site. Thus, Franklin Power Products has in essence, fulfilled the requirements of Section VIII.F of the Consent Order and is released from from the requirements of Sections VIII.G and H of the Consent Order.

Webb Well Field Evaluation (May 5, 1999)

U.S. EPA reviewed the Franklin Power Products Webb Well Field Evaluation (May 5, 1999) prepared by O'Brien and Gere Engineers Inc. (O'Brien and Gere Evaluation). The primary purpose of the O'Brien and Gere Evaluation was to assess the report titled "Protecting Ground Water at the Indiana American Water Company's Webb Well Field Near Franklin, Indiana" (June 30, 1997), by Wittman Hydro Planning Associates (WHPA Report) and to assess the validity of the primary conclusion of the WHPA Report that "DCE contamination at the Franklin Power Products facility is very likely ending up in the community drinking water supply" (Page 11).

The O'Brien and Gere Evaluation (pages 3 and 4) identifies deficiencies in the modeling and conclusions of the WHPA Report, and O'Brien and Gere (page 4) conclude that the modeling described in the WHPA Report cannot be used to demonstrate that the Franklin Power Products site is the source of VOCs detected in the Webb Well Field.

U.S. EPA does not disagree with the deficiencies identified by O'Brien and Gere in the WHPA Report and in fact, many of the deficiencies noted in the O'Brien and Gere Evaluation are similar to concerns that U.S. EPA identified during our 1998 evaluation of the WHPA Report. In addition, U.S. EPA agrees that the WHPA groundwater modeling described in the WHPA Report does not appear adequate to demonstrate that the Franklin Power Products site is the source of VOCs in the Webb Well Field. However, U.S. EPA also found that the O'Brien and Gere Evaluation did not provide any additional hydrogeologic information to refute this contention and to demonstrate that the Franklin Power Products site absolutely did not contribute to the VOC contamination detected at the Webb Well Field and thus did not fulfill the requirements of Section VIII.I of the Consent Order.

U.S. EPA recommends that Franklin install additional temporary or permanent piezometers/monitoring wells in the area east and northeast of the Franklin site to: 1) Help demonstrate that there is not a natural, or Webb Field pumping induced, groundwater flow component towards the east or northeast, and 2) Obtain additional information regarding the extent of the capture zone of the upgraded groundwater recovery and treatment system.

In summary, U.S. EPA has reviewed the: CMI Groundwater Recovery and Treatment System Upgrade Report; the Treatability Study AS/SVE System Report; and the Webb Field Evaluation Report that were submitted to U.S. EPA on May 6, 1999, by O'Brien & Geere Engineers, Inc. on behalf of Franklin Power Products, Inc. and Amphenol Corporation. Please provide responses to our comments and/or a revised version of the Corrective Measures Implementation Groundwater Recovery and Treatment System Upgrade Report within thirty (30) days from receipt of this letter. U.S. EPA suggested on page 2 of this letter that if the groundwater elevation adjacent to the storm sewer does not show a substantial continued decreasing trend during the first six months of operation, that Franklin implement other measures to prevent continued groundwater infiltration to the storm sewer. In addition, Section 2.5 Conclusions section of the Treatability Study: AS/SVE System report proposes further evaluation and possible enhancement of the upgraded on-site ground water recovery system as a feasible remedial alternative to the AS/SVE system. Please provide additional information on the possible enhancement of the on-site ground-water recovery system. Also, U.S. EPA has identified some additional work on the Webb Well Field project. Please respond to our comments on the next steps for the Webb Well Field project/report with thirty (30) days from receipt of this letter.

If you should you have any questions please contact me at (312) 353-4921.

Sincerely,

Walt Francis, Project Manager
Enforcement and Compliance Assurance Branch
Waste, Pesticides and Toxics Division

Enclosure

cc: J. Michael Jarvis, Franklin Power Product
William Gabriel, O'Brien & Gere
John Gunter, IDEM

FRANKLIN POWER PRODUCTS INC./AMPHENOL
TECHNICAL REVIEW
GROUND WATER RECOVERY AND TREATMENT SYSTEM
UPGRADE REPORT

SPECIFIC COMMENTS

1. Paragraph 2 on page 2 of the Ground Water Recovery and Treatment System Upgrade Report (Report) states, "To increase the individual yields of the existing three on-site recovery wells (RW-1, RW-2, and RW-3), existing pneumatic pumps and ancillary equipment were replaced with electric submersible pumps." However, the Report does not provide a description of the new equipment. The description should include but not be limited to the type and model number of the submersible pumps, the operating capacity of the pumps, and the depth at which the pumps were installed. This information is necessary in order to evaluate and understand how the recovery system was modified and the potential capability of the modified recovery system.

2. Paragraph 5 on page 2 of the Report states, "Subsequent to completion, RW-4 was developed to remove fine grained sediments from the well screen and casing, and to promote hydraulic connection with the surrounding aquifer." However, the Report does not provide information regarding the well development methods used by the facility at RW-4. The Report should provide a full description of the methods used to develop RW-4, including the number of gallons removed during development, turbidity measurements collected during well development activities, and the amount of time required to develop the well. This information is necessary in order to evaluate well installation and development procedures and how it might impact the recovery system. In addition, if any aquifer tests were conducted at RW-4 to establish the optimum pumping rate for the well, those results should be presented in this Report. The Report should also include information regarding the type of pump installed in the new recovery well, the model of the pump, the pump's operating capacity, and the depth at which the pump was installed.

3. Paragraph 7 on page 2 of the Report states, "Prior to installation of the electric pumps, the average flow from the recovery wells during January 8 to 29, 1999, was 9.1 gpm. Subsequent to installation of the electric pumps, the average flow as measured from March 10 to 25, 1999, increased to 25.9 gpm." However, it is important to note

that along with the replacement of the pneumatic pumps and ancillary equipment with electric submersible pumps, an additional recovery well (RW-4) was also installed at the facility to increase groundwater recovery operations. In order to understand better the differences in recovery rate using electric submersible pumps as opposed to pneumatic pumps, the Report should also present a calculated average pumping rate for each recovery well over an average 24-hour period. This information would better convey the realized increase in recovery rate based on replacing the pneumatic pumps with submersible electric pumps.

In addition, the Report states that the modified recovery system is operating 24 hours a day. However, the Report does not provide any information on the system's method of operation. The Report should include a description of how the modified system is operated. For instance, are the pumps within the recovery wells operated on a continuous basis or are the pumps cycled using timers or float switches.

4. Paragraph 1 on page 3 of the Report states, "The figure (Figure 2) shows that under static conditions, ground water flows from north to south across the site." However, the Report does not provide sufficient data to support this statement. Based on Figure 2 it appears that the pre-upgrade groundwater elevation contour map was prepared using static groundwater levels collected at only 10 of the 19 available water level monitoring points shown on the map. No static water levels were collected between monitoring wells MW-9 and MW-21, and it does not appear that there are any water level monitoring points located along the far eastern and western boundaries of the site. The only area of the site where sufficient data were gathered to verify static groundwater flow was from the southeastern portion of the site and even there, data was not collected from MW-23, MW-25, IT-2 and IT-3. Therefore, the statement that Figure 2 shows that groundwater flows from "north to south across the site" is not fully supported by the data presented in this Report. To support the interpreted groundwater flow direction for the site, additional groundwater elevation monitoring points could be installed along the eastern property line between MW-9 and MW-30 and along the western property line.

5. Paragraph 1 on page 3 of the Report indicates that Figure 3 depicts ground water flow conditions during active pumping

of the upgraded system. Figure 3 shows that well developed cones-of-influence have been developed by the recovery wells, which extend across the site to the downgradient property boundary. However, the Report does not provide sufficient data to support this statement.

The groundwater contour elevations depicted in Figure 3 represent the facility's interpretation of the groundwater elevation data collected during the operation of the upgraded recovery system. However, based on the groundwater elevation data presented in Figure 3, it is not clear whether the cones-of-influence actually extend across the site between RW-4 and RW-3. Note that U.S. EPA is aware that it may be difficult to obtain data to conclusively demonstrate that the cones of influence between the two pumping wells actually intersect due to problems associated with installing piezometers on the residential property south of RW-4. However, the installation of even a temporary piezometer on the residential property west of MW-22 would provide much needed data.

In addition, it does not appear that the interpreted cone-of-influence from RW-4 extends to the western property boundary of the facility. Therefore, the statement that the cones-of-influence extend across the site to the downgradient property boundary is not supported by the data presented in this Report for the portion of the facility west of RW-3.

To support and verify the interpretations of static groundwater flow present at the site and cones-of-influence that result from the operation of the groundwater recovery system, the facility should install additional monitoring points in the form of piezometers or additional groundwater monitoring wells west and south of RW-4.

6. The second bullet under the conclusions section on page 3 of the Report states, "The cones-of-influence developed by the ground water recovery wells extend across the site to the downgradient property boundary providing a hydraulic barrier to off-site groundwater flow." This statement implies that the recovery wells are providing containment of groundwater flow across the site and that this containment prevents groundwater from flowing off-site. Data which demonstrates capture zones for each of the recovery wells have not been provided in this Report since based on Figure 3, it does not appear that there are an adequate number of groundwater elevation monitoring points along the southeastern and

southern property boundaries to verify the size of the capture zones in the area south, east and west of RW-1 and RW-2.

To support and verify the modified groundwater recovery system's ability to contain the on-site groundwater, Franklin should install additional groundwater elevation monitoring points at intervals along Hamilton Avenue from the intersection with Upper Shelbyville Road to a point where an extension of the western property boundary would intersect Hamilton Avenue. In addition, the facility should conduct groundwater modeling using data from on-site monitoring and recovery wells and all newly installed groundwater elevation monitoring points to support that containment is achieved through the operation of the current on-site recovery system. The modeling should include particle transport modeling to verify capture. Note that if site specific data has not already been obtained, additional aquifer testing may be required to derive parameters such as hydraulic conductivity, transmissivity, and storativity.